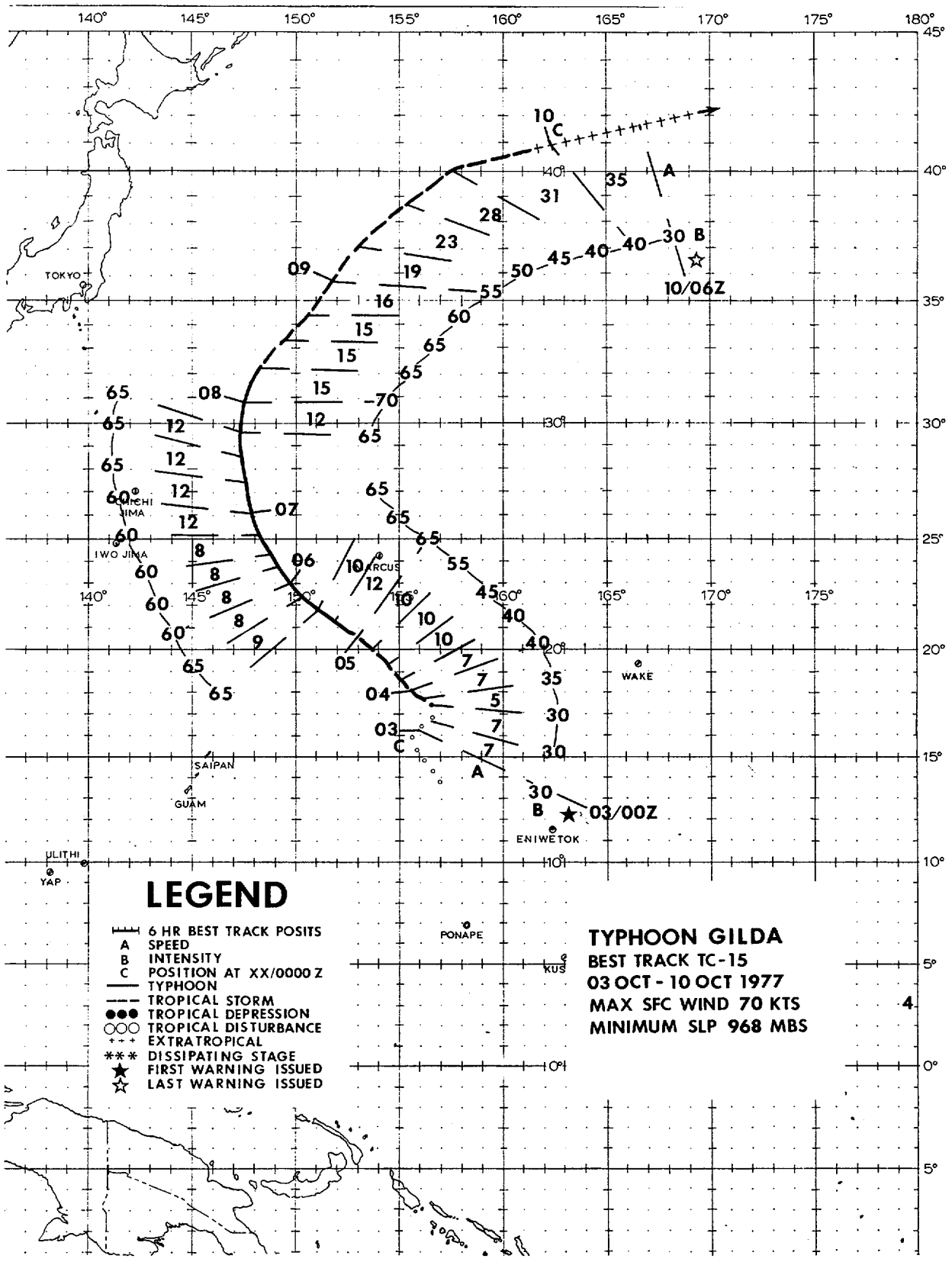
LEGEND
6 HR BEST TRACK POSITS
A SPEED
B INTENSITY
C POSITION AT XX/0000 Z
TYPHOON
TROPICAL STORM
TROPICAL DEPRESSION
TROPICAL DISTURBANCE
EXTRATROPICAL
DISSIPATING STAGE
FIRST WARNING ISSUED
LAST WARNING ISSUED
TYPHOON GILDA
BEST TRACK TC-15
03 OCT - 10 OCT 1977
MAX SFC WIND 70 KTS
MINIMUM SLP 968 MBS
10/06Z
03/00Z
TOKYO
IWO JIMA
SAIPAN
GUAM
YAP
ULITHI
WAKE
ENIWETOK
PONAPE
KUS

On the 1st of October, a large area of heavy convection, 300 nm (556 km) in diameter, was detected by satellite approximately 325 nm (600 km) north of Ponape. Synoptic data indicated a weak surface circulation in the vicinity. The system, which would later become Typhoon Gilda, was observed to be moving northward toward a weakness in the mid-tropospheric subtropical ridge.

On the 2nd of October, a Tropical Cyclone Formation Alert was issued as satellite data indicated increased organization and upper level outflow. Further intensification was expected due to the existence of an upper level trough to the northwest.

Aircraft reconnaissance on the morning of the 3rd reported 38 kt (20 m/sec) winds at the 1500 foot (441 m) flight level. Based on this data and the assessed good potential for further intensification, the first warning was issued on TD 15 at 0000Z on the 3rd.

For the next 18 hours the tropical depression moved erratically toward the north at a speed of 5 kt (9.3 km/hr). During the 3rd, the mid-tropospheric subtropical ridge northeast of TD 15 began to build toward the west. Late on the 3rd, TD 15 responded and began to move toward the northwest. Simultaneously, the tropical depression began to interact with a cyclonic cell in the Tropical Upper Tropospheric Trough (TUTT) located to the depression's northwest. Divergent southwesterlies aloft, on the southeast periphery of the upper level cyclonic cell, enhanced the outflow of TD 15 and by 1800Z on the 3rd the system had intensified to tropical storm intensity.

During the 4th, Tropical Storm Gilda continued to intensify as it accelerated to 12 kt (22 km/hr) on its northwestward track. Reconnaissance aircraft on the afternoon of the 5th indicated 80 kt (41 m/sec) winds at its 700 mb flight level, and observed that the central pressure of Gilda had fallen to 974 mb, a 15 mb drop in 11.5 hours. Using this information, Gilda was upgraded to typhoon at 0600Z.

During the past 36 hours, a mid-tropospheric, short wave trough moved eastward from eastern China toward Japan, and began to deepen. By the 5th this trough had moved east of northern Japan, and had dug sufficiently equatorward to sever the subtropical ridge north of Gilda. By the afternoon of the 6th, the typhoon had acquired a north-northwestward track toward the weakness in the ridge. At 0622Z, aircraft reconnaissance showed that the central pressure had risen to 986 mb. Consequently, the 0600Z warning was amended and Gilda was downgraded to a Tropical Storm. The weakening, however, was short lived; 24 hours later she had again attained typhoon intensity. At 1500Z on the 7th Gilda passed through the weakness in the subtropical ridge and shortly thereafter began recurving toward the north-northeast. As frequently observed with October tropical cyclones, Typhoon Gilda continued to intensify after recurvature. She attained her peak intensity of 70 kt (36 m/sec) on the 8th when aircraft at 0325Z reported the typhoon's minimum sea level pressure of 968 mb(Fig. 4-16).

By the night of the 8th, Gilda had again weakened to tropical storm strength, and had taken a northeast heading around the northwestern periphery of the mid-tropospheric high cell. During the subsequent 36 hours, the tropical storm accelerated rapidly toward the east-northeast and weakened at a rate of 5 kt (2.6 m/sec) per 6 hours. On the morning of the 10th, Gilda became extratropical, moving toward the east-northeast at more than 30 kt (55 km/hr).

During her eight day span, the closest point of approach to land was 220 nm (407 km) when she passed southwest of Marcus Island on the evening of October 5th. On the ocean, ships stayed well away from Gilda's strong winds. As a result, Gilda claimed no loss of life or damage to property.

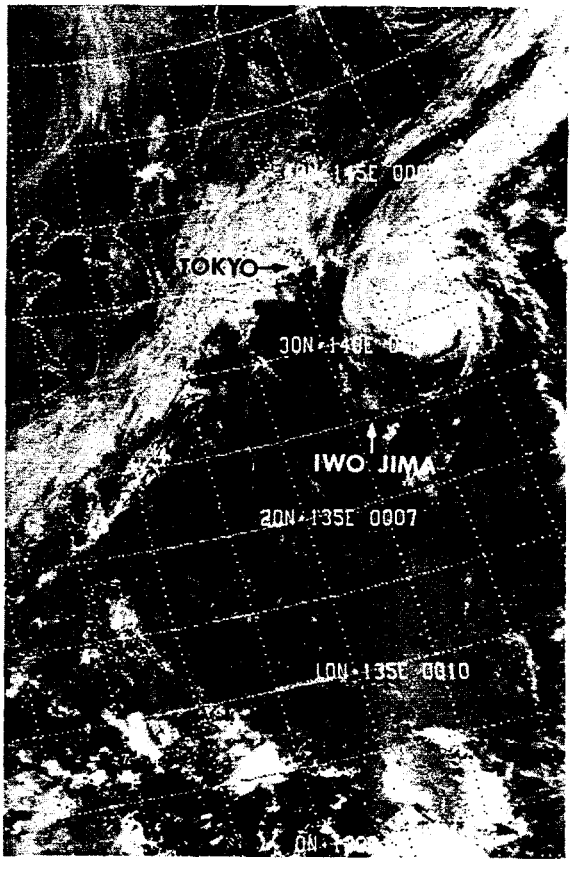


*FIGURE 4-16. Typhoon Gilda at maximum intensity of 70 kt (36 m/sec) during recurvature, 7 October 1977, 2343Z. (NOAA-5 imagery from FLEWEAFAC Suitland, MD)*